



# The Minuteman



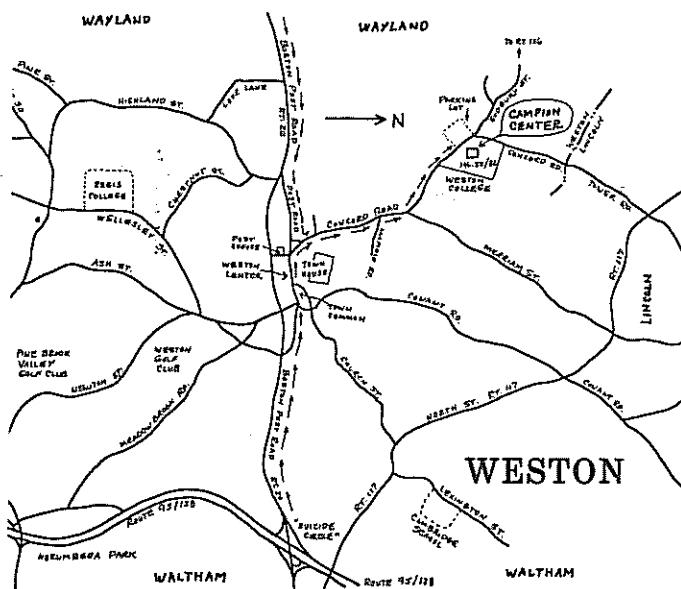
Volume 12 Number 2

The OFFICIAL NEWSLETTER of the  
MINUTEMAN REPEATER ASSOCIATION

November 1983

## MEMBERSHIP MEETING

<u>DATE</u>	November 15, 1983
<u>PLACE</u>	Campion Center, Concord Road, Weston MA
<u>TIME</u>	7:30 PM, Doors open at 7:00 PM for socializing
<u>FEATURE</u>	Packet radio demonstration by Honeywell-Wang group
<u>PRIZES</u>	Raffle prizes will be drawn, be sure to buy tickets
<u>REFRESHMENTS</u>	Coffee and doughnuts available.



## PRESIDENT'S CORNER

Another Holiday season is on the horizon at this writing and let me wish all our members and readers best wishes for a happy and healthy Holiday season.

Amateur radio has been prominent to the public these days with the Grenada operation and Dr. Owen Garriott about to take a flight. This is the best form of advertising we can get because it has no monetary expense and beside creating good will and an awareness of Amateur radio we will certainly get new members in the ranks, create an affinity with Governmental Agencies and protect our use of the frequency spectrum we now enjoy.

I note that in the past few years strained relationships in certain areas between Amateurs, Civil Defense, Police and other Agencies have given way to an increased dependence on us for Public Service related communications assistance.

We now have an active alliance with Quincy Civil Defense and in return receive a rent-free site. Our responsibilities will be to provide communications to the community for several events in the course of the year.

At this writing we are about to cement another alliance for Civil Defense for another community. When this is accomplished, we will have an excellent site which will allow remote receiver, single or multi repeater operations. There will be no new repeater, just improved coverage through linking.

We who participate not only do public service but receive free training from Civil Defense.

My point is that too few serve on these public service functions. As time goes on we will have more job orders and it seems that only the same few fill these orders.

Response to date is not representative of an organization of our size and, if this does not improve, we will fail in our mission set forth in our Articles of Organization and in the first section of Part 97 of the FCC Regs., that is to provide emergency and public service oriented communication.

Please tune in on 22/82 on Tuesday evenings and give us your support; we need it.

Our Tech Chief Bill Wade, K1IJZ and repeater tech crews are working to accomplish a common software change that will permit uniform changes in programs for the controllers and to the extent possible, our goal will be to give users Bay State phone patch service.

Repeaters with auto patch are as follows:

Weston - 22/82

Marlboro - 01/61 and on our 449.50 Machine; and on

Quincy - 07/67.

We encourage use of the auto patch and convenience calls. We get inquiries about convenience calls and any restrictions are in the remote past. Use the patches just keeping in mind good taste and FCC Regulations.

Within the MMRA, we are accomplishing our goals for improved technology and all our repeaters are modern and up to date except for 22/82. This will get a new receiver and transmitter section improving its operation and present plans call for a remote receiver which will increase its receiving power.

Please try to attend the November Membership Meeting; it promises to be a fascinating example of a marriage between a computer and Amateur Radio.

73, de  
KA1AL

## EDITOR'S CORNER

Well, here we are again in the dreary month of November. The leaves are falling and the oil prices are rising. It makes me long to return to the Caribbean where I enjoyed my honeymoon in October. Believe it or not my new XYL let me take my IC-2AT on the cruise! I worked several hours in St. Thomas and San Juan. Needless to say we had a ball.

Things were really jumping at the last MMRA membership meeting. Wayne Green had everyone enthralled with his news and views about the future of computers and ham radio. I guess I could not have picked a worse time to write an anti-computer editorial (September Minuteman) than right before his visit. Nice timing - Bill!!

Since this is the last newsletter of this calendar year, let me take this opportunity to wish everyone a happy holiday season. As the nights get colder let's warm up the ether with R.F. Start using those repeaters both on VHF and the new UHF rigs. Maybe Santa will bring me a new 220 or 440 MHz rig!!

Editor

## THE MINUTEMAN REPEATER ASSOCIATION

The Minuteman Repeater Association is an organization dedicated to the promotion of amateur radio activities through the use of UHF and VHF Frequency Modulation techniques; to encourage participation in the Radio Amateur Civil Emergency Service (RACES) of the Commonwealth, or any county or town therein, and the U.S. Government; to develop, utilize and coordinate amateur radio repeater systems as licensed by the Federal Communications Commission; to assist Civil Defense and other units of government in the field of communications as the need may arise; to sponsor any endeavor or engage in any other non-profit purposes for and in behalf of the membership of the Association, which is consistent with the provisions of Internal Revenue Code, section 501 (C)(7).

The MMRA owns and operates four two meter repeaters, one 220 repeater and one 450 repeater:

Marlboro	146.01	-	.61
	444.50	-	449.50
Stoneham	146.115	-	.715
Quincy	146.07	-	.67
	222.80	-	224.40
Weston	146.22	-	.82

All general correspondence and inquiries regarding membership should be addressed to The Minuteman Repeater Association, P.O. Box 2282, Lexington, MA 02173.

### BOARD OF DIRECTORS

#### PRESIDENT

Alan Kunian KALAL 47 Carl Road  
Holliston, MA 01746 (W)879-2992 (H)429-2906

#### VICE PRESIDENT

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Earle Benson W1HXP Reading (H)944-1020  
Frank Comfort K01M Medford (H)396-8458  
Thomas Holmes WALZTD Randolph (H)961-3156  
Gerald Horne K1GOI Stow (H)897-3996 or 7146

Board meetings are held the first Wednesday of the month (except July) at 7:30 PM at 326 Union Avenue in Framingham

## THE MINUTEMAN

THE MINUTEMAN, the official Newsletter of the Minuteman Repeater Association, is published six times a year. The purpose of the Newsletter is to keep its members informed on meetings, special events and actions of the officers and membership. It is also to serve as a source of technical information written by its members and to list equipment offered for sale. Letters to the Editor are strongly encouraged, and they must be signed. Names will be withheld upon request. Material for The MINUTEMAN should be sent to the Editor, William Shaughnessy, KB1DY 49 Grafton Street, Arlington, MA 02174

### PUBLIC SERVICE NET

Tuesdays - 7:30 PM on 22/82 Traffic or comments

### SATELLITE NET

Wednesdays --8:00 PM Information and discussion

### APPOINTMENTS FOR THE YEAR 1983-1984

#### Trustees of repeaters

-61 Steve Tolf K1ST (H) 366-7636  
-67 Joe Devin, Sr. W1MWF (H) 782-8893  
-715 Bill Sencabaugh K1UAQ (W) 942-0100  
-82 Bill Wade K1IJZ (H) 891-9079  
-220 Tom Holmes WALZTD (H) 961-3156  
-450 Fred Campbell WBLFAE (H) 485-7935

#### Public Service

Quin Spear K1ZFH (H) 481-0052

#### Communications

##### Newsletter Editor

Bill Shaughnessy KB1DY

(W) 861-6600 x2364 (H) 643-0575

##### Newsletter Production

Charlie Hanson WALYRQ

(W) 495-7328 (H) 369-9362

#### Technical Coordinator

Bill Wade K1IJZ (H) 891-9079

#### Meeting Arrangements

Earle Benson W1HXP (H) 944-1020

#### Data Processing

Al Hamilton AG1F (H) 922-3307

#### Education

Frank Comfort K01M (H) 396-8458

#### Microprocessor and New Tech Projects

George Downs W1CT (H) 899-4794

#### Direction Finding

Mort Grant W1JSH (H) 657-7940

#### Ombudsman

Gene Piken WBLHAP (H) 359-7686

#### Raffle

Gerry Horne K1GOI (H) 897-3996 or 7146

#### To the Editor

Some time ago you mentioned (page 3 September 1982 issue) a disease on the repeaters called "call sign-itis." Your readers apparently paid no attention to your article as they still go on swapping call signs throughout their conversations.

Not only is this boring to the listeners, its absolutely superfluous, excessive and unnecessary. FCC regulations say that you only need to give your own call sign (after the first contact) either once every ten minutes or at the end of a series of transmissions. Let's be more careful about this in the future.

Name withheld by request

### 1983-84 MEETING DATES

TUESDAY - NOV. 15 - Weston  
WEDNESDAY - JAN. 18 - Location to be determined  
MONDAY - MAR. 19 - Location to be determined  
TUESDAY - MAY 15 - Location to be determined

THE TEN YEAR AMATEUR LICENSE is now a reality, but you must renew your current ticket in order to get one. The Commission acted on October 6th to affirm PR Docket 83-337 and has extended the operator and station licenses in the Amateur Service to 10 years, while, at the same time, changing the grace period for renewing an expired license from the current 12 months to 24. The Commission said that it would not issue a blanket order extending existing licenses because it felt that this would be confusing to both U.S. amateurs and foreign licensing authorities who have reciprocal agreements with the United States. Instead, the 10 year license will be phased in as current licensees apply for renewal. (FCC Order 83-454-5, October 6, 1983)

### The Westlink Report

The annual dinner get-together of the 715 repeater users is planned for Monday, December 5 at 6PM at the China Moon restaurant, Main Street in Stoneham. Open to all MMRA members and guests, no formal reservations are needed but let Earle, W1HXP or Evelyn, K1BBN know if you plan to attend.

## MMRA MEETING

September 19, 1983

The first meeting of the season was held in the second floor, air conditioned meeting room at the Campion Center in Weston attended by about 125 persons. The President, KA1AL opened the meeting at 8:11 PM with several announcements: the Budget may be revised downward with the donation of a new electrical system at the Quincy repeater site; a new receiver and transmitter are in process for the Weston machine; a variety of prizes for raffle winners - a VIC 20 computer, a Mirage amplifier (2 watts in, 30 watts out); an antenna; and two \$25 gift certificates donated by TEL-COM, INC.

It was moved and seconded that the proposed budget be accepted as printed in the Newsletter, which was appropriated unanimously.

Speaker of the evening was Wayne Green of 73 Magazine fame. He described some of the magazines he publishes (73 Magazine, Microcomputing, 80 Micro Computing, Desktop Computing, In Cider, etc.). He demonstrated his Radio Shack Model 100 computer, noting its many possibilities. "Computers are the wave of the present, a wave that's still building." Microcomputers were put on the market in January, 1975; Byte was published in July 1975, and is now the largest consumer electronic magazine in the United States.

"Engineers, scientists and technicians will be needed by the millions. Opportunities are absolutely unlimited in education, in the home and in industry." He plans to start up a Technical College for training the young recruits that will be needed, which will include practical professional work, R and D, software development, sales, accounting, TV studio operating, taping, collecting, selling etc. in a 60 hour week, 30 hours in class and 30 hours in practical work.

High tech is infectious for kids. We hams aren't doing enough to get the younger set interested. "Every high school needs one period a week for hi-tech club meetings." Prep schools will be started with education to become a consumer product with one third practical business problems, and two thirds will be technology to provide training as entrepreneurs for starting small businesses. In Japan, high schools all have ham clubs. Japan has over a million hams, turning out 7 times as many engineers as the United States. Japan has taken over virtually every consumer electronic industry - TV, hi-fi, tape recorders, video recorders - all Japanese.

Wayne Green Enterprises, formed in the spin off of the magazine publishing business, will handle the new software distribution company starting soon in Boston as well as the proposed satellite cable network.

Other announcements at the end of the meeting: Frank, KO1M spoke of the Code Class for Novices starting September 24 for 10 weeks at the Wilmington High School. Bob, N1BRM reminded us of the Satellite Users Net Wednesday evenings at 8 PM on the Marlboro machine, and the Weather Net on the Westboro repeater at 6 PM daily. Meeting adjourned at 10:20 PM.

WA1YRQ

## AMATEURS ASSIST IN SEARCH

A group of MMRA members assisted in the search for Kenny Claudio on October 13th. The Boston Police requested amateur radio help and a command post communication set-up was established. Jack Carroll, AB1Z set up a simplex phone patch to aid the police in screening incoming calls. Calls for volunteers were sent out over the MMRA repeaters. Unfortunately, the incident did not end happily. The body of Kenny Claudio was found later that day. Some of those who responded to the call were Barry, W2FQD; Jack, AB1Z; Joe, N1BWM and Don, N1BVZ. Thanks also to Bob, W1IBF and Jack, W1ZLF, control ops who assisted in the call-up of hams.

- Editor

Thanks W1FQD

Instead of using Express mail, one company uses regular parcel post and stamps it "Fresh Fish."

\* \* \*

The diagram's a puzzle of units modules, sections - What I need's instructions on how to read directions.

\* \* \*

## TREASURER'S REPORT

For the period October 1, 1983 to October 31, 1983

EXPENSES		INCOME	
01-61	\$ 23.17	Dues	\$1,029.96
07-67	382.50	Misc. Income	10.00
115-715	21.94	Total Income	\$1,039.96
22-82	24.09		
Meetings	161.77		
Newsletter	18.00		
Total Expenses	\$631.47		

## YEAR TO DATE REPORT

For the period May 18, 1983 to October 31, 1983

EXPENSES		INCOME	
01-61	\$ 115.58	Dues	\$5,069.92
07-67	919.78	Raffle	221.00
115-715	147.70	Coffee & D'nuts	36.60
22-82	437.91	Misc. Income	22.95
220-Quincy	438.52		
440-Marlboro	103.65	Balance brought forward 5/18/83	\$3,935.88
Treasurer	31.00	Total Income	5,350.47
Secretary	108.20		
Meetings	500.42		
Newsletter	215.07	Total Expenses	3,017.83
Total Expenses	\$3,017.83	Balance 10/31/83	\$6,268.52

de Bill, KB1DY

## WELCOME TO NEW MEMBERS

WA1ASI	Joseph	Boston
KH1BH	Ken	Billerica
N1BQZ	Vern	Sudbury
N1CBO	Leslie	Newton
N1CPV	Allen	Shrewsbury
N1CRH	Keith	Tewksbury
N1CSG	Al	Ashland
N1CSI	Rhody	Wakefield
W2CTS	Carl	Concord
N1CTY	Bob	Hopkinton
KS1E	Don	Waltham
KA1EXY	Joe	Boston
N5FHP	Dan	Natick
KALFYV	Joe	Holliston
W1GOH	Steve	Chestnut Hill
KALGBS	Marcia	Concord
KALHVC	Marguerite	Winthrop
W1IAY	Mel	Woods Hole
KA2KST	Doc	Arlington
W1ND	Jim	Winthrop
K1PD	Bud	Westford
W1QNZ	Dick	Winchester
AA2T	Jerry	Marlboro
KN1T	Manny	Dracut
K1UGM	Jim	Wakefield
W1UPL	Rody	New Ipswich
K1USH	Ted	Andover

Automation is a technological process that does all the work while you just sit there. When you were younger this was called mother.

\* \* \*

The greatest scientific researchers, have yet discovered how the birds know exactly when you've washed your car.

\* \* \*

Never feed coffee to a drunk - all you'll get is a wide-awake drunk.

\* \* \*

## TELECONFERENCE AMATEUR RADIO NET

The Honeywell Amateur Radio Clubs recently announced that the December 1st North American Teleconference Radio Network (TRN) speaker will be Vern 'Rip' Riportella (WA2LQQ), Executive Vice President of AMSAT, speaking on THE AMATEUR SPACE PROGRAM.

It is expected that amateur satellites, space technology and space missions will be discussed during the net. Net Control Station for the presentation will be Jeff Brennan (WB4WLW) of the Honeywell and AMRAD Amateur Radio Clubs, Washington, D.C.

Space is truly amateur radio's "new frontier." All amateurs will want to tune into the TRN. The net will start at 7:30 p.m. Central Standard Time (local nets may begin earlier.) For a complete list of stations and locations participating in the net check the CompuServe "HamNet" X10 Database or contact the Net Manager, Rick Whiting (W0TN) at 4749 Diane Drive, Minnetonka, MN 55343 (SASE please). Most areas of the U.S. and much of Canada are covered by the net with 2-way contact even for mobiles and hand-held radios!

If your area does not have a VHF repeater participating in TRN, Rick can give you all the details on how to get set up. Basically your repeater gets teleconferenced to a telephone bridge centrally located in Chicago. You are 'on line' with thousands of amateurs across North America! The only cost is phone line cost to the bridge.

The TRN is the largest forum of amateurs bar none! Over 160 repeaters and base stations in the U.S. and Canada bring the TRN to over 75,000 radio amateurs across North America. Hemisphere wide coverage is provided by AMSAT OSCAR 10 (provided the satellite is accessible for uplinking from the U.S. during the net.) Many amateurs have the opportunity to ask questions or discuss the topic with the featured speaker. SWLs and scanner enthusiasts also enjoy the net.

On March 8, 1984, the TRN subject will be "Amateur Radio and the Law" with the top ham lawyers as speakers. Past nets have featured Vic Clark (W4KFC), Joe Reisert (W1JR), and Barry Goldwater (K7UGA).

The TRN brings together amateurs and their technical, social and political leaders to learn, to inform and to inspire. It's one of the most innovative and worthwhile uses of amateur radio ever attempted and has grown in a very short time to unbelievable proportions. The day will come when nearly every active amateur will have the capability to tune in.

EDITOR'S NOTE: The Honeywell Teleconference Net can be heard on the Billerica Repeater, 147.12 MHz.

W5YI Report

## FISCAL YEAR CHANGE

In the past, membership in MMRA was effective for a one year period from the month in which the dues payment was made. In the interest of efficiency, the Board has decided that the fiscal year should be from October 1 to September 30, with all renewals coming due at the same time, and allowing a grace period of 60 days, after which non-payers would be dropped from active membership.

Starting in September, 1983, all new members of MMRA will pay one year's dues, \$20.00 for individual members and \$30.00 for family, as in the past. At renewal time, the Secretary will pro-rate the dues to expire in September for all old members according to the following schedule:

	Individual	Family
September 1983	\$20.00	\$30.00
October 1983	18.33	27.50
November 1983	16.67	25.00
December 1983	15.00	22.50
January 1984	13.34	20.00
February 1984	11.67	17.50
March 1984	10.00	15.00
April 1984	8.34	12.50
May 1984	6.67	10.00
June 1984	5.00	7.50
July 1984	3.34	5.00
August 1984	1.67	2.50

## EPA TO SET RF RADIATION STANDARDS

A recent issue of Science News reports that the Environmental Protection Agency (EPA) intends to issue a proposed limit on radio-frequency radiation. The NTIA (National Telecommunications and Information Administration) will adopt the EPA guidelines and the FCC has agreed to enforce the new standards.

The EPA has just completed a review of RF radiation - including that of short wave radio. The body absorbs RF energy best in the 30-300 MHz range. Prolonged exposure to RF radiation causes body heating and other effects such as brain damage, miscarriage and death. While many countries (including the Soviet Union, Great Britain and Canada) have RF-exposure standards, the United States does not.

Radiation is classified in two types of health and safety purposes. HF high energy radiation such as X-Rays and gamma rays (which are beyond the range of frequencies the FCC regulates) are capable of causing harm through ionization of atoms in living tissue. (Nuclear radiation falls under this category.) FCC regulated frequencies do not have sufficient energy to cause ionization, but in sufficient amounts are capable of causing damage through generation of heat.

The exact means by which damage is caused and degree resulting from a given intensity are not fully understood by the scientific community. OSHA (Occupational Safety and Health Administration) and the EPA have jurisdiction over various regulatory programs relating to RF radiation including the authority to set standards.

It appears that the standard will be 200 microvolts per square centimeter. At present, the OSHA "advisory ceiling" is 10 milliwatts per square centimeter averaged over a six minute period. Thus the new standard (if enacted) will be 50 times stricter. The fact is that amateur radio equipment - particularly VHF/UHF transceivers where the face comes in close proximity with the antenna - exceed this guideline. It is unknown at present just what effect the new standards will have on amateur radio equipment now in use or manufactured in the future.

W5YI Report

## HERE and THERE

The MMRA Board of Directors meets the first Wednesday of each month (except July) at 7:30 PM at 326 Union Avenue in Framingham. These meetings are open to any members who wish to attend. If you have business for the Board, someone usually monitors the 82 and 715 repeaters during the meeting. A call on either frequency should put you in touch.

Have you seen the Massachusetts automobile number plates with "our" Minuteman insignia on them? How appropriate these would be for MMRA members, however we'd all have to join the Massachusetts National Guard to qualify for them. A pity!

Suggestion from one of our members: When you are travelling along the highway and wish to talk to someone, instead of saying simply "W1ABC listening", give the town or city where you are and your chances of drawing another ham out of the woodwork could be much greater. Say something like "This is W1ABC mobile, Route 2 in Arlington", or something similar. You may find another ham closer than you think. It's worth a try.

Bumper sticker seen on car of bald-headed man: "GOD MADE ONLY SO MANY PERFECT HEADS - THE REST HE COVERED WITH HAIR". (Nope, it wasn't Mort's)

If you need code practice beyond what you can hear on W1AW, try the Derry repeater on 146.85 MHz at 11:45 PM.



# MMRA MEMBERSHIP - CALL and HANDLE

NLAAY	Dick	KLBBO	David	WLDON	Charlie	WLGE	Hal
KLABO	Mary	KLBTF	Barry	WBLDQB	Jackie	WBHGEQ	John
NLACA	Jose	KALBTB	Don	WBLDQC	Peter	WA2GFZ	Curt
WBLACA	Barbara	WBLBUZ	Joe	WBLDQQ	Al	KD4GG	Jim
NLACO	Frank	WBLBVA	Fran	KLDWS	John	KLGGP	Murry
KALACX	Ken	NLBVO	Ralph	KALDUT	Bill	WLGJV	Dave
WLAEQ	Dan	NLBVZ	Donnie	WLDWI	Frank	KLGKR	Dick
WBLAFC	Jim	WLBXC	Steve	WALDXI	Paul	WBLGMA	Tom
NLAJV	Bob	NLBYG	Heidi	KALDXW	Mac	KLGNT	Dave
KLAGM	Paul	WLBYT	Don	KBLDY	Bill	WLGOH	Steve
WALAGQ	Ed	NLBWY	Ben	KLDZS	Bruce	KLGOI	Gerry
NLAGR	Emil	WALBZG	Steve			KBLGP	Joe
NLAHA	Ed	NLBZT	Tory			KLGRB	Marty
WA2AHP	Andy	NLBZU	Mark	KGLE	Hal	WLGRN	Paul
NLAIT	Tom			KSLE	Don	KALGU	Jeff
WALAJH	Norm	KALCAZ	Linda	KQLE	Jeffrey	WLGUF	John
NLAJK	Ed	WLCB	Steve	KBLEA	Allan	WLGUI	Ellis
WBLAJL	Luke	NLCBO	Leslie	WBLECL	Ted	WALGUN	Ernie
KALAKD	Albert	KLCCL	Chet	WLECN	Joe	KALGWH	Norm
NIAKM	Ken	NLCGR	Barry	KLEEG	Doc	KALGXR	Tom
NIAKY	Jerry	KBLCD	Nick	KALEES	Charlie	WLGVD	John
KALAL	Al	KALCNP	Lili	WBLEFN	Al	KALGZN	Mimi
KALATU	Frank	WBLCDR	Harry	WBLEGL	Jeff		
NLAMI	Bill	KLCG	George	KLEGN	Bud		
WA9AMZ	John	NLCGF	Mike	WBLELO	Al	AJLH	Fred
WALANA	Barry	NLCGM	Paul	WALELQ	Tom	KALHAI	Sam
KALAOB	Van	KALCGQ	Claire	KLEMT	George	KALHAJ	Morrin
NLAOJ	Patricia	NLCGV	Cheryl	KLENK	Tony	KALHAL	Stina
WALAOB	Joe	NLCHE	Steve	KALENP	Art	WBLHAP	Gene
WBLAPK	Dan	NLCID	Vinny	KALENT	Wayne	WLHBB	Phil
WBLAPS	Ken	NLCIO	Lyndy	WB3ERA	Jon	KLHBM	Gene
NLAQ	John	KBLCJ	Joe	WLERJ	Jerry	KLHGI	John
WBLAQA	Bob	WALCJZ	Marion	WBLEUA	Bill	WLHGS	KEN
NLAQQ	Lucy	NLCGN	Pat	WALEUS	Dave	WLHGU	Ned
KALAS	Al	NLCGR	Jonas	KALEW	Chris	WLHIL	Richard
WLAST	Joseph	KALCLL	Jackie	KALEXY	Joe	WLHIO	Walt
KBLAT	Rick	KALCM	Murf	WLEYI	Allan	WLHIT	Art
NLATT	George	KALCMB	Stan	WBLEZH	Geoff	KLHK	Hal
KBLAU	Bob	NLCMC	John	WBLEZK	Pierre	WLHK	Marshall
NLAU	Bill	WLCMR	Bob			WLHKK	Earl
KLAUI	John	KALCOA	Charlie	AGLF	Al	KALHKP	Michael
KBLAV	Frank	KLCOS	Lloyd	KKLF	Bill	WALHLH	Gary
NLAXJ	Jack	NLCPF	John	WBLFAE	Fred	WALHLI	Dick
KLAYE	Frank	NLCPV	Allen	KBLFE	Chan	KLHLZ	Al
WLAYI	Walt	NLCQH	Darnley	WBLFFS	Jim	KLHMC	Jackie
NLAZM	Thomas	NLCQJ	Andy	N5FHP	Dan	WALHMW	Bill
		NLCQR	Don	WBLFHT	Bob	WALHNW	John
KDLB	George	NLCRC	Richard	WBLFIY	Leo	KBLHO	Ruff
KLBA	Allan	NLCRH	Keith	WBLFNM	Buz	WLHPB	Nat
KALBBN	Evelyn	NLCSC	Al	WLFNV	Art	KALHPV	Bob
KLBC	Bob	NLCSE	Rhody	WLFOP	Cookie	NLHR	Dave
NLBCB	Chris	NLCSE	Ed	KALFPY	Jim	KALHUP	Michael
NLBDA	Steve	WLCT	George	W2FQD	Barry	KALHVC	Marguerite
NLBDC	Tom	WBLCTO	Dick	WALFRK	Larry	KALHWB	Millie
WALBGP	John	W2CTS	Carl	KLPTW	Arnie	WLHWK	Father Dan
WLBH	Bob	NLCY	Bob	KALFW	Walter	WLHWS	John
KGLBH	Ken	KALCUH	Dennis	KALFWT	Eric	WLHXF	Earle
NLBHA	Dottie	WBLCUZ	George	KALFWU	Andy	WLHYV	Alan
NLBHP	Jim	KLCVP	Dick	WBLFXW	John		
NLBHY	Mac	KBLCX	John	WBLFYD	Gloria	ALLI	Aubrey
WLBIO	George	WBLCXU	Milo	WLFYE	Duke	WLIAE	Cal
KLBJQ	Lefty	KALCYW	Charles	KALFYV	Joe	KLIAO	Salty
WLBJS	Elmer	KLCZR	Rich	KALFZ	Frank	WLIAQ	Fred
WALBLG	Doug			WBLFZF	Mark	WLIAV	Mel
KBLBN	Rick	WALDCL	Bruce			WLIAZ	Pete
KLBGG	Blair	KALDJY	George	KKLG	Mary	WLIBF	Bob
KALBOS	Gary	WLDKD	Bob	KALGBS	Marcia	WLIBV	Al
NLBPX	Chet	WLDMB	Ralph	WLGCL	William	WLIC	George
NLBQZ	Vern	KALDMF	Bill	WBLGCQ	John	KALICR	Dave
NLBRM	Bob					WALIDA	Bob

WALIDK Art  
 KLEQ Ken  
 WALIFE John  
 KLIGO Chuck  
 WLIIT Dave  
 KLIJZ Bill  
 KLIKA John  
 W3IKG John  
 W2ILM Paul  
 KALIN Al  
 KALINO Richard  
 KALIU Mort  
 KALIVC George  
 KALIVT Wendell  
 KALIYY Mary

KILJ Irving  
 WLJBY Bernie  
 WLJCI Wally  
 WLJDO Frank  
 WALJEV William  
 KALJFP Bob  
 WLJHP Larry  
 KLJHT Dave  
 WB8JLG Avery  
 KLJLK Henry  
 WALJNJ Bob  
 KALJNT Rod  
 WLJOB Harry  
 NLJR Jim  
 WALJRB Charles  
 NLJS Joe  
 WLJSH Mort  
 WLJSM Don  
 WALJYH Max  
 WLJZD Charles

KMLK Johnny  
 WLKAN Warren  
 KLKJW James  
 WLKLY Carl  
 WLKPZ Bill  
 KBLKQ George  
 WLKSK Bob  
 KA2KST Doc  
 KLKWE Al  
 WALKYT Al

WLLBA Bob  
 KLICQ Joe  
 WALIGP Norm  
 WLHP Joe  
 WLLHV Bill  
 KLLHW Mel  
 WB2LIT Ray  
 WALLC Robert  
 WLLML Leo  
 WLLMV Dick  
 WLLQU Harry  
 KLLRX Leo  
 WLLZW Bill

KKIM Ken  
 KOLM Frank  
 WLMA Ed  
 KIMBO Dave  
 KIMBX Roger

KLMCH Glenn  
 WALMDO Tom  
 W3MHZ Jim  
 WMLIS Curt  
 KLMMC Dean  
 WLMOJ Charles  
 KLMOQ Frank  
 KLMR Dave  
 WLMWF Joseph  
 KLMWK John  
 WALMZO Cindy

WLND Jim  
 KLNDF Neal  
 WALNNI Joe  
 KLNMM Paul  
 KLNON Bob  
 WLNRO Roger  
 WLNUP Andy  
 KLNZC John

KNLO Al  
 KLODW Bob  
 WLOJF John  
 WALOJX Rod  
 KALOK Bucky  
 KLOKE Bill  
 WALOLA George  
 WALOLB Steve  
 WALOMW Dick  
 KALOP Tony  
 WALOQK Jack  
 KLOQX Perry  
 KALOS Harold  
 KLOYD Dave  
 KLOYE Joe  
 WLOZ Gerry  
 KLOZN Fred

KJLP Bill  
 KALPA Bill  
 KLPBL Bob  
 KLPD Bud  
 KLPFT Reid  
 WLPFX Hal  
 KLPK Paul  
 WALPNZ Louis  
 WLPRI Bob  
 W8PS Peter  
 KALPX Fritz  
 WLPXK Joe  
 WALPZK Helmut

KRLQ Sandy  
 WLQEC Bill  
 WLQFD Tony  
 WLQKR Frank  
 WLQLC Lee  
 WB2QNF Charlie  
 KIQNZ Dick  
 WLQUT Nevin  
 WLQVK Mel  
 WLQXE Bob  
 WALQXI Carol  
 WALQZV Steven

AJLR Dana  
 KALRB Pat  
 WALRCA Linda  
 WLRCJ Woody  
 WLREP Bob  
 WALRGG Les  
 KLRCM Roger  
 WALRIY Frank  
 WALRLX John  
 KLRLY Bob  
 WLRRNJ Bob  
 WLRRPF Jim  
 WLRRN Joe  
 WLRRP Dick  
 WLRYE Bill

AJLS Milo  
 KDLS Babe  
 KEIS Jerry  
 WLSOS Ruthe  
 WISEF Bob  
 KALSF Clem  
 WLSM Ed  
 WALSMI Bob  
 WLSQY Walt  
 KLSRS Dick  
 KLST Steve  
 KLSXS Gordon  
 WLSYA Red

AA2T Jerry  
 KNLT Manny  
 KDIT Rudy  
 KN6T Jon  
 KKLT Phillip  
 KLTCV Roger  
 WALTGL Jim  
 WALTJJ Nathan  
 KLTJZ June  
 K2TJZ Curtis  
 WALTRQ Russ  
 KLTUR Tom  
 WB2TZV Douglas

KALU Steve  
 KLUAF John  
 KLUAQ Bill  
 KLUCY Allan  
 KLUDI Bob  
 WALUEH Jim  
 WLUF Dennis  
 KLUGM Jim  
 WALUGW Jim  
 WLUPL Rody  
 KLUSH Ted  
 WLUQA Ruth  
 WALURF Hal  
 KLUVD Joe  
 WLUVL Stewart  
 WLUVV Ed  
 WLUVO John  
 WALUVR John

AF1V Ron  
 KOLV Don  
 KLVDQ Jim  
 KLIFY Jim

KLVLB Mike  
 KALVM Harry  
 WALVNE Harry  
 WALVSY Rich  
 WLVS Bob  
 KLVTI Lee

AJLW Julie  
 WLWAE Bernie  
 WALWDQ Don  
 WLWUF Bob  
 WALWIS Jay  
 WLWME Ralph  
 WLWMZ Joe  
 WALWPI Doris  
 KLWQ Kris  
 WLWRV Ed  
 WLWSN Steve  
 KLWTF Stan  
 WALWUU Danny  
 WB4WXT Missy  
 WALWYC Carl

KW4X Tom  
 KALXK Chris  
 KALYA Ed  
 WLYHY Lance  
 WLYJI Lloyd  
 WALYMW Herbert  
 WLIPC Gerry  
 WLYPF Paul  
 WALYRQ Charlie  
 KLYSO Jim  
 WLYTK Paul  
 WALYEL John  
 WB4YTW Jack  
 WALYVO Doug  
 K4YX Pam  
 KLYXS Bea

ABLZ Jack  
 AELZ Bernie  
 KALZA Paul  
 WLZBD Frank  
 KALZC Yuki  
 WALZEP Roger  
 KLZFH Quin  
 WLZFI Bob  
 WALZGK Richard  
 WALZID Thomas  
 WALZJG Bob  
 WLZIG Jack  
 WALZLK John  
 WLZML Russell  
 WLZOC Arthur  
 KALZR Don  
 WALZRQ Joey  
 WALZSF Jerry  
 WLZTL Len  
 KLZUP Hank  
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NOVEMBER, 1983



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Linehan, Rev. Daniel WLHWK  
Ling, Robert G. WLBIF  
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Iipson, Perry R. K10QX  
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 Markowski, Marion B. W1CJZ  
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 McDonald, William S. K1DXW  
 McLean, L. Eloise W1LPOF  
 McNair, Kenneth W. K1ACX  
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 Moore, Jeffrey W. N1BQF  
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 Moran, John W1ZLG  
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 Moretti, Patrick J. K1RBR  
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 Orlando, Benedict N1BYW  
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 O'Shea, John J. W1GQQ  
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 Van Nostrand, Robert J. K1AOD  
 Vanzo, Daniel L. N1PFP  
 Vaz, Fernando W1LBDZ  
 Viens, Normand P. W1LGP

Wade, William R. K1IJZ  
 Waible, Amelia H. K1GZN  
 Waible, David A. K1GNT  
 Walbridge, Charles E. K1IGO  
 Walker, Carlton J. W1ZOTS  
 Walker, John F. K1MK  
 Ward, Harold W1GE  
 Ward, H. Reid K1LPT  
 Ward, Steve W1GOH  
 Ware, Gary R. W1LHLH  
 Ware, George R. W1HLI  
 Waters, Robert A. W1LPR  
 Webber, George K1LVC  
 Weekman, Vern W. Jr. N1BQZ  
 Wester, Thomas N1AZM  
 Wetmore, Lawrence C. W1LFRK  
 Whitcomb, Arthur E. W1MHK  
 White, Allan D. W1LBY  
 White, Edward W. W1LWV  
 White, Robert P. K1LRY  
 Whitten, Richard J. W1LCTO  
 Wigton, William C. W1LJEV  
 Willmarth, Robert W. W1LCH  
 Wilson, Stanley C. K1LCMB  
 Winslow, John D. W1LIFE  
 Wissell, Daniel W1BYT  
 Wolf, Paul J. W1LYP  
 Wood, John E. W1OJF  
 Wood, Leon G. S. W1LWK  
 Woodward, Walter S. W1LRCJ  
 Worme, Bernie A1LZ

Youngwirth, Steven A. W1ZYK  
 Yuskas, Anthony J. W1QFD  
 Yurewicz, John T. K1ZWK

Zach, Richard J. K1LBN  
 Zonderman, Paul S. W1LIM



## at the SEPTEMBER MEETING



## K1GGP KORNER

A dime isn't worthless. In an emergency, it makes a good screwdriver.

\*\*\*

Home: a place to stay while the car is being fixed.

\*\*\*

Those proud of keeping an orderly desk never know the thrill of finding something they thought they had irretrievably lost.

\*\*\*

Newspaper says the government has stopped printing \$1,000 bills. Funny - we hadn't noticed.

\*\*\*

Looking for perfection? You'll find it on job applications.

\*\*\*

It's not whether you win or lose that counts, but how you place the blame.

\*\*\*

Maybe experience isn't worth what it costs, but you can't get it any cheaper.

\*\*\*

How do you know you're getting older? When you're faced with two temptations, and you choose the one that gets you home by nine o'clock.

\*\*\*

People went to the movies for a good cry? Now they go to the Supermarket.

\*\*\*

\*\*\*\*\*

The next time you want to saw some wood, wipe a little ARMORALL protectant on the saw blade letting it dry before you start, and your labors will be much easier. Works just fine for power saws, bow saws, pruning saws, hand saws, hack saws, etc. by reducing friction.

Another tip - Spray WD-40 on your snow shovel to keep snow from sticking.

## MMRA TECHNICAL QUESTIONNAIRE

(To help us highlight your special fields of interest)

Call: \_\_\_\_\_ Name: \_\_\_\_\_ -Age: \_\_\_\_\_

Occupation: \_\_\_\_\_ Work Phone: \_\_\_\_\_

Home Address: \_\_\_\_\_ Home Phone: \_\_\_\_\_

Technical background (Hobby, Education, Employment) \_\_\_\_\_

Middle age is that period of life when you would do anything to feel better except give up what's hurting you.

\*\*\*

Yesterday's nest egg can't buy today's bird house.

\*\*\*

To make a long story short, don't tell it.

\*\*\*

My aunt has 8 locks on her door. She never goes out. It takes her 3 hours to open the locks.

\*\*\*

Your bank would call and notify you that you were overdrawn? Today they call and demand their toaster back.

\*\*\*

We would frame the first dollar we earned in a 10¢ frame? Today the dollar is worth 10¢ and the frame cost \$5.

\*\*\*

### THE TECHNICAL PROGRAM OF THE MINUTEMAN REPEATER ASSOCIATION

During the year just ended, the MMRA maintained its four vhf repeaters in reliable operation. Many commercial installations would envy our on-the-air to down time ratio. The Quincy repeater was resited at a superior location on Forbes Hill with rebuilt equipment and a superior signal.

Two MMRA designed microprocessor control units were completed, programmed and debugged. One of these units was placed in service at Marlborough where phone patch service is now available as a result.

A UHF repeater (440 MHz.) was sited in a very superior location in Marlborough. The second controller was used at this site with the result that your association has the superior signal on 440 now and will soon have phone patch as well.

There are now under construction four sets of special test equipment - one for each major repeater site. These units, consisting of a precision synthesized signal source, precision attenuator, and calibrated microwattmeter will be used for the alignment and performance measurement of receivers and duplexers at each site.

In addition to continued maintenance, The budget for the coming year is considering such items as: Continued activity in the microprocessor controller field - to provide about two units a year to meet the continuing needs for expansion of service. Establishment of a 220 repeater at Quincy. Establishment of satellite antennas to give Weston better "ears". Program to rebuild and modernize Weston computer control.

We also have under advisement, programs for repeater to repeater links to increase geographical coverage, for novelty schemes such as working low band dx etc. And we are considering the electronic mail box idea.

Because of our wide variety of activity, we, can and do interest many in participating. By the same token, our membership is large enough that we find interested hams for most every one of our projects.

Help me fit you in. Fill out & return the enclosed questionnaire.

p.s. The current fox hunt activity has spurred interest in direction finding antennas.

Special Interests:

	Antennas	Feeders	Duplexers	Receivers	Exciters	Amplifiers	Pwr. Supplies	Test Equip.	Audio	Microprocessors	Hdwe.	Programming	Test Equip.	Other
RF														
Audio														
Digital														

I fancy myself as Trustee\_\_\_\_, Control Op.\_\_\_\_ Tech. Supervisor\_\_\_\_  
Maint. Technician\_\_\_\_, Project Coordinator\_\_\_\_, Kit Builder\_\_\_\_,

Please use other side to enlarge on any of the above - also to give me any information I should have asked for and didn't.

## ON ADJUSTING AUDIO

Many times, people who ask the repeater control operators to give them a signal report seem to misinterpret the comments they receive, particularly with respect to their audio. To help clarify matters, we'd like to show some typical oscilloscope patterns that we see while listening to you, and indicate what adjustments to your rig might be appropriate in each case.

First let's pin down the names we use for the adjustments. In a typical transmitter audio section, the microphone is fed into a speech amplifier which may or may not have a gain control. If it does, it will be referred to as the  mike gain . The audio signal is next passed through a clipper. The clipper output is fed into another amplifier which typically includes some spectrum shaping. The gain of this post-clipper amplifier is set by the rig's deviation control. (I'd like to say that this control is always present, but if I do, someone is bound to turn up a rig without one, so I won't say it.)

In a properly adjusted rig, these two controls have nearly independent influences on your signal. To understand why this is so, it is important that the operation of the clipper be clear, so let's start in the middle and work out. The clipper ideally has an input/output characteristic curve. If the input signal is small, the output is a faithful representation of it. If the input signal is large, its peaks are "clipped" off.

Suppose that sufficient signal is being fed into the clipper that it does clip off the peaks. Then the peak amplitude of the signal being fed on to the post-clipper amplifier is fixed - it is the maximum signal that the clipper will pass. Thus the gain of the post-clipper amplifier will be the only thing determining the peak signal fed to the modulator. Since this determines the peak deviation, the pot which controls the gain of this amplifier is indeed the rig's deviation control.

What determines whether sufficient signal is being fed to the clipper to cause it always to clip off the peaks? Evidently two things: the gain of the speech amplifier and the level of the signal going into the speech amplifier (i.e., how loud you talk). If your rig has a mike gain control, you can set it so that the signal going into the clipper results in a desirable amount of clipping (discussed below) when you talk at whatever level is comfortable for you. If you have no mike gain, the only way to adjust the clipping is to adjust how loud (or how close to the mike) you talk.

I have assumed that some clipping takes place and have indicated that this is desirable. Why? For good communications. Obviously clipping distorts the speech signal somewhat. However the distortion is of such a nature that (if it is not too severe) the intelligibility of the audio coming out of the guy's speaker at the other end is maximized. This is because normal unaltered speech has a large ratio between its peak signal level and its average signal level. Since the audio communication channel you are using (i.e., the concatenation of your rig, the repeater, and the other guy's rig) has a limit on the peak audio signal level that it can pass, a large ratio between peaks and average means that if the peaks pass through the channel, the average must be well below the channel's capacity. Conversely, if the peaks are clipped off causing the ratio to be smaller, the average signal level can be higher while still allowing the remaining peaks to pass through. You will sound louder to the other guy, that is, your signal-to-noise ratio will be better. Of course, this process can be carried too far. Excessive clipping causes too much information to be thrown away, and you sound "mushy."

Let's look at some pictures to clarify this. Figure 1 shows a normal, unclipped audio signal. This signal will be seen at the output of the mike, and an amplified version of it will go into the clipper. If the level is too low, the same thing will come out of the clipper. If the level is OK, something like Figure 2 might come out of the clipper. Finally, if the level of the speech is too high, Figure 3 will come out. Of course, the range of possible signals between Figures 1 and 3 is continuous, and just how much clipping is perfect is a matter of judgment.

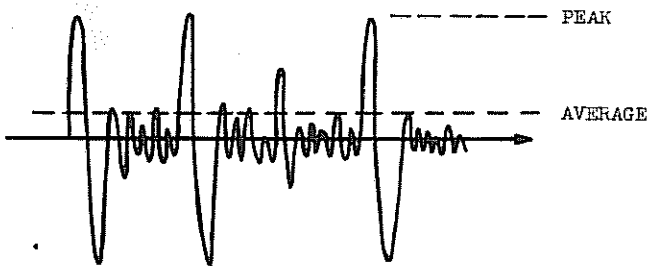


FIGURE 1

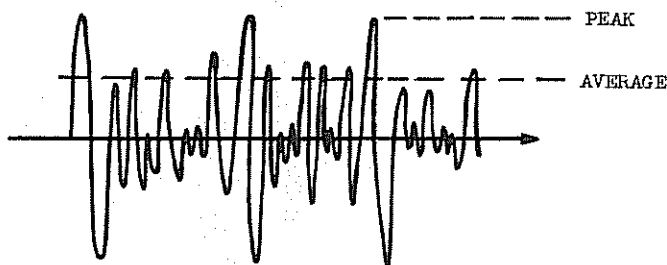


FIGURE 2

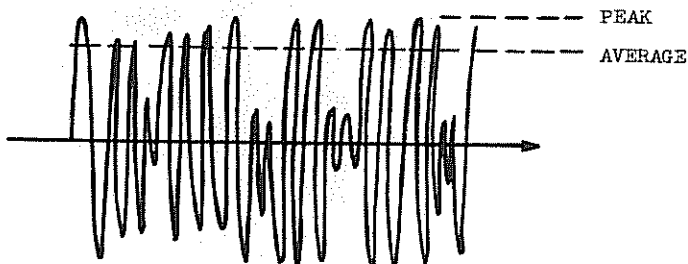
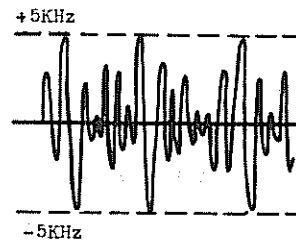
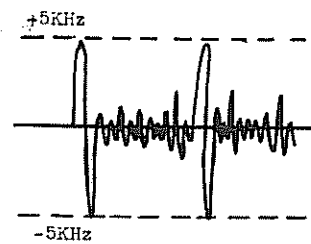
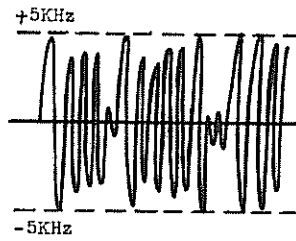
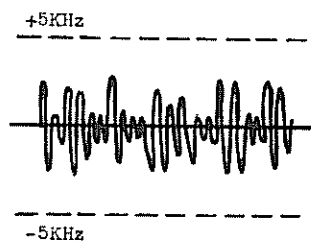
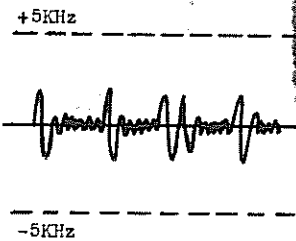
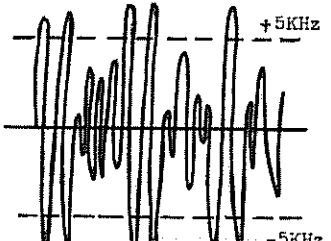


FIGURE 3

MIKE GAIN OK  
DEVIATION OKMIKE GAIN LOW  
DEVIATION OKMIKE GAIN HIGH  
DEVIATION OKMIKE GAIN OK  
DEVIATION LOWMIKE GAIN LOW  
DEVIATION LOWMIKE GAIN OK  
DEVIATION HIGHFIGURE 4  
TYPICAL 'SCOPE PATTERNS

How does all this relate to the pictures we see on the discriminator monitor oscilloscope? Figure 4 shows some typical cases. Remember that the peak signal amplitude that the repeater can pass corresponds to  $\pm 5$  kHz of deviation. It should now be clear what we mean when we tell you, "Your peak deviation is 5 kHz but your average is only 1 kHz. Bring up your mike gain." It should also be clear what we mean by, "Your clipping looks good but your deviation is low. Bring it up." We have found by experience that guys sound good over the repeater when they have the specified  $\pm 5$  kHz of peak deviation and 2 kHz to 3 kHz of average deviation. Listen critically for a while - I'm sure you will easily notice the difference among repeater users by ear without needing a 'scope.

Remember, FM is a nonlinear process. Once you are strong enough into the machine to quiet the noise, how loud you sound to the other guy is independent of your signal strength. It depends only on how well your audio section is adjusted. Too many users on the air are DFQ (dead full quieting) yet also NEA (not enough audio)!!

From MMRA Newsletter, February 1975

\*\*\*\*\*

The bank of friendship cannot exist without deposits.

\*\*\*

They tell the romance between two pickpockets. It began when they found themselves holding hands in the same guys pocket.

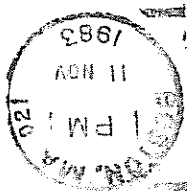


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